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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,629	01/30/2006	Audun Opem	43315-219115	2902

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EXAMINER	
PHAM, THOMAS K	
ART UNIT	**PAPER NUMBER**
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,629	OPEM ET AL.	
	Examiner	Art Unit	
	Thomas K. Pham	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

First Action on the Merits

1. Claims 1-20 of U.S. Application 10/539,629 filed on 01/30/2006 are presented for examination.

Quotations of U.S. Code Title 35

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ541, 550-551 (CCPA 1969)" (MPEP p2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. The Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 06/17/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

6. Claim 1 is objected to because of the following informalities: the term "safety hardware" in line 4 is inconsistent within the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. Claims 1 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 1 recites the limitations "the safety integrity level" in line 1 and "the single controller" in line 3. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 15 recites the limitations "the main processes" in line 3 and "the safety-integrity level" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,975,966 ("Scott").

Regarding claim 1

Scott teaches "A method to increase the safety integrity level of a controller for control of real world objects" (e.g. col. 1 lines 15-42), "the method comprising: attaching to the single controller a safety-hardware unit wherein the safety hardware unit communicates with a central processing unit of the controller" (e.g. col. 6 in particularly lines 29-33 and 47-54), "downloading safety-related configuration data and/or diagnostic information to the attached safety-hardware unit and downloading the control function software to the controller" (e.g. col. 10 lines 46- 67 and col. 11 lines 1-21), "configuring the attached safety-hardware unit to execute logic, which depends on the downloaded safety-related configuration data and/or diagnostic information, and in an active or passive way set output values of the controller to a safe state for online safety control" (e.g. col. 10 line 46 to col. 11 line 21, col. 14 line 55 to col. 15 line 23, and col. 18 lines 22-37).

Regarding claim 15

Scott teaches "A single or 1-channel control system intended for safety-related control of real-world objects" (e.g. col. 1 lines 15-42), "comprising: a single main central processing unit handling the main processes of a controller" (e.g. col. 6 lines 9-23), "an attached safety-hardware unit comprising means to increase the safety-integrity level of the controller and comprising means to set output values of the controller in a safe state for online safety control" (e.g. col. 6 in particularly lines 29-33 and 47-54).

Regarding claim 2

Scott teaches the method according to claim 1, wherein the controller has the capability of executing a set of non-safety critical control functions, which set of non-safety critical control

functions is the same before as well as after the safety hardware unit is attached (e.g. col. 6 lines 9-23).

Regarding claim 3

Scott teaches the method according to claim 2, wherein the configuring comprises: downloading to the attached safety hardware unit diagnostic information, which previously was automatically generated by a software tool as a result of user's configuration of the controller and which diagnostic information is used in the attached safety hardware unit during safety critical control (e.g. col. 13 lines 31-44).

Regarding claim 4

Scott teaches the method according to claim 1, wherein access to a plurality of input and output values of a real world object is obtained through a bus connected between the controller and to an input/output unit and the validity of the bus communication is verified in the attached safety hardware unit (e.g. col. 31 lines 50-67).

Regarding claim 5

Scott teaches the method according to claim 1, wherein the timing supervision of the controller is verified in the attached safety hardware unit (e.g. col. 32 lines 38-56).

Regarding claim 6

Scott teaches the method according to claim 1, wherein correct sequence of code logic is verified in the attached safety hardware unit (e.g. col. 9 lines 1-29).

Regarding claim 7

Scott teaches the method according to claim 1, wherein correctness of memory content of the controller is verified in the attached safety hardware unit (e.g. col. 12 lines 51-58).

Regarding claim 8

Scott teaches the method according to claim 1, wherein a download of new control functionality logic to the controller is verified in the attached safety hardware unit (e.g. col. 12 lines 14-50).

Regarding claim 9

Scott teaches the method according to claim 1, wherein the attached safety hardware unit performs checks in order to allow only users logged on as safety classified engineers and safety classified operators to modify the control functionality logic and parameters (e.g. col. 18 lines 8-37).

Regarding claim 10

Scott teaches the method according to claim 4, wherein the bus communication verification logic in the attached safety hardware unit is implemented diverse (e.g. col. 20 lines 21-44).

Regarding claim 11

Scott teaches the method according to claim 4, wherein the attached safety hardware unit is diverse generating a safety related header for the bus communication (e.g. col. 9 line 64 to col. 10 line 16).

Regarding claim 12

Scott teaches the method according to claim 11, wherein the input/output unit has two diverse implementations each verifying the correctness of the bus traffic and each generating a safety related header for the bus communication (e.g. col. 21 line 62 to col. 22 line 17).

Regarding claim 13

Scott teaches the method according to claim 1, wherein the attached safety hardware unit comprises a first and a second module in a redundant configuration, the second module is

updated with data that exists first module at the time of a failure and the second module takes over the safety related control of the control system from the first module if a failure of the first module is detected (e.g. col. 8 lines 18-25 and lines 47-67).

Regarding claim 14

Scott teaches the method according to claim 13, wherein the redundant controller unit is attached to the controller, which takes over in case of a failure of a primary controller and the redundant controller unit establish communication with either the active first module or the active second module of the attached safety hardware unit (e.g. col. 9 lines 1-14 and lines 30-63).

Regarding claim 16

Scott teaches the control system according to claim 15, wherein the controller has the capability of executing a set of non-safety critical control functions, which set of non-safety critical control functions is the same before as well as after the safety hardware unit is attached (e.g. col. 6 lines 9-23).

Regarding claim 17

Scott teaches the control system according to claim 16, further comprising: means for downloading to the attached safety hardware unit diagnostic information, which previously was automatically generated by a software tool as a result of user's configuration of the controller and which diagnostic information is used in the attached safety hardware unit during safety critical control (e.g. col. 13 lines 31-44).

Regarding claim 18

Scott teaches the control system according to claim 17, further comprising: an input/output unit connected to the controller by a bus and the validity of the bus communication is verified in the attached safety hardware unit (e.g. col. 31 lines 50-67).

Regarding claim 19

Scott teaches the control system according to claim 18, wherein the bus communication verification logic in the attached safety hardware unit is implemented diverse (e.g. col. 20 lines 21-44).

Regarding claim 20

Scott teaches the control system according to claim 19, wherein the attached safety hardware unit is diverse generating a safety related header for the bus communication (e.g. col. 9 line 64 to col. 10 line 16).

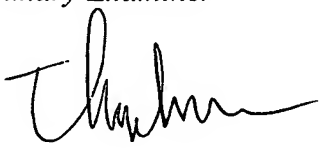
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Friday from 7:30 AM - 4:00 PM EST or contact Supervisor *Mr. David Vincent* at (571) 272-3080.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.** Responses may also be faxed to the **official fax number (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Primary Examiner



December 24, 2007